Wireless Emergency Alerts; Amendments to the Commission's Rules Regarding the Emergency Alert System
Further Notice of Proposed Rulemaking
FCC Docket No. 16-127 / PS Docket No. 15-91, PS Docket No. 15-94

Comments from the California Governor's Office of Emergency Services (Cal OES)

A. Ensuring the Provision of Effective WEA Alert Messages

1. Defining the Modes of Participation in WEA

Paragraph 111: "To what extent could information about each Participating CMS Provider's WEA service offerings by geographic area, device, and technology facilitate *community reliance on WEA as an emergency management tool?"*

At present, many emergency management and public safety professionals misunderstand or underestimate the capabilities of the system. Providing greater detail to demonstrate local WEA capabilities will enhance stakeholders' sense of confidence in, and engagement with, the system.

2. Infrastructure Functionality

No comment.

3. Alert Message Preservation

Paragraph 117: "Is it feasible to use this CAP element [expiration time] as a basis for identifying the time at which an Alert Message should be discarded?"

The Common Alerting Protocol (CAP) expiration time element should be used to end the carrier's retransmission of an alert, benefiting the consumers who have recently turned on their wireless devices, or entered the alert target area. The CAP expiration time would also assist in clearly marking "cached" versions of past and expired alerts, eliminating confusion over current alerts. Cal OES support the proposed rule's proposal to maintain a user-accessible list of previous alerts for 24 hours within WEA devices, including those that have expired.

4. Earthquake Alert Prioritization

Paragraph 120: "We seek comment on the parameters for WEA to deliver earthquake alerts in less than three seconds, including any operational or regulatory changes that may be necessary in order to achieve this objective."

Cal OES is actively engaged with the Alliance for Telecommunications Industry Solutions (ATIS) in developing requirements for Earthquake Early Warning (EEW) alerts

over Long-Term Evaluations (LTE) networks. Cal OES expects the State's future EEW alerts will be delivered in two phases. First, an initial "Expect Shaking" alert would be immediately transmitted to wireless devices over a separate high-speed mechanism. Ideally, WEA would be used to deliver more detailed follow-up information. If it proves unfeasible to achieve the three-second delivery requirement within WEA, this may be a viable alternative approach.

Further, Cal OES recognizes that the three second parameters in which WEA aims to deliver earthquake alerts is in conjunction with international system standards. However, WEA should continuously investigate areas for system improvements in order to achieve the quickest dissemination possible.

Paragraph 121: "We expect that prioritization at the CMS Provider Alert Gateway would remove the possibility of any queuing delay that may occur due to simultaneous arrival of multiple alerts."

The United States Geological Survey (USGS) advised Cal OES that their implementation of early earthquake detection may generate multiple, near-simultaneous alerts regarding the same earthquake originated from multiple seismic laboratories. This redundancy will provide a valuable enhancement to alert reliability. Therefore, in addition to the question of prioritizing earthquake alerts over other classes of WEA traffic, carriers will need to consider the arrival of multiple earthquake alerts in quick succession.

Paragraph 122: "Can the Participating CMS Provider Alert Gateway's standards and software be updated to allow it to distinguish earthquake alerts from other Imminent Threat Alerts, for example, by reference to the its CAP 'event code' parameter?"

The CAP event code could certainly be used to identify earthquake alerts with a specified code. However, Cal OES cautions the Commission against trying to achieve this by adding an Emergency Alert System (EAS) event code and applying it to WEA. The current EAS event codes has accumulated over many years into a mixture of hazard-type, response-type, and administrative categories, which has resulted in large areas of overlap and ambiguity that sometimes confounds the alert originator in selecting the appropriate code for a given situation. Cal OES urges the Commission to reject the incorporation of EAS event codes into WEA and other future warning systems.

5. Disaster Relief Messaging

Paragraph 125: "We also seek comment on the extent to which WEA can be used to funnel milling behavior towards other authoritative sources of information, such as radio or television, that may be better fit to provide critical information to the public in certain circumstances."

The Commercial Mobile Service Alert Advisory Committee's (CMSAAC) developed the "tune to local media" language to mitigate the 90-character message length restriction of that time. However, Cal OES warns against this short-cut messaging for two reasons. First, many wireless users at any given time do not have immediate access to broadcast media. Further, the variety of radio and television outlets available limits the at-risk public to finding immediate and expanded information about the current alert, as every station does not always report the same threats. Cal OES advises the Commission to provide a Uniform Resource Locator (URL) to a source reporting alert-related information, rather than providing outdated short-cut messaging.

B. Incorporating Future Technical Advancements to Improve WEA

1. Multimedia Alerting

Paragraph 128: "We seek comment on whether that 14,400 bytes would be an appropriate maximum size for any multimedia content that a Participating CMS Provider could be required to transmit, as well as on any additional technical specifications or parameters that could facilitate multimedia transmission."

Cal OES supports a 14.4-kilobyte size limit, as it enables emergency managers and public safety professionals to include multimedia images and maps in WEA alerts.

2. Multilingual Alerting

Paragraph 134: "To what extent would emergency management agencies initiate Alert Messages in languages in addition to English and Spanish were Participating CMS Providers required to support them? To what extent would CMS Provider support for additional languages incent emergency management agencies to further develop their capabilities in initiating Alert Messages in those languages where relevant to their respective communities? What, if any, additional steps can we take to support emergency management agencies' efforts to develop multilingual alerting capabilities? How do emergency management agencies currently expect individuals with limited English proficiency to receive and respond to emergency information? Are the emergency management mechanisms currently in place sufficient to safeguard those individuals during crises?"

Local agencies, which originate the majority of alerts in California, vary widely in their capacity to generate alerts in languages other than English. In many cases, this capability varies depending on which language-skilled staff happens to be on duty when an alert is required. Currently, a widely accepted cost-effective and accurate mechanism for generating timely translations of Alert Messages has yet to be adopted. Some agencies rely on electronic form templates to achieve a rough-and-ready translation into non-English languages, but this has not proven practical for languages that do not use the "Latin" character set. Many critical messages in English, such as "shelter in place," often have no direct equivalent in other languages.

Current practice relies heavily on family members, friends and neighbors to share alerts with non-English speakers. Cal OES does not believe this practice is sufficient, rather many emergency managers view it as the best level of service feasible given available resources Cal OES recommends the Commission collaborate with the U.S. Department of Homeland Security (DHS) to identify criteria for translation system certification.

In the meantime, there may well be some public safety or emergency management agencies that will, occasionally, have the capacity to provide multi-lingual alerts, and Cal OES urges that they be given every technical opportunity to do so.

Paragraph 135: "Is the area of greatest need with respect to WEA's language capabilities ensuring that people who struggle with English comprehension can understand emergency communications? In the alternative, should we prioritize support for the largest language communities in the United States, notwithstanding the tendency of individuals in those language groups to speak English 'very well'?"

Cal OES recommends WEA support and adopt Unicode characters as a single international standard in order to minimize the consequences of non-English speakers failing to comprehend warning alerts during earthquake emergencies.

Unicode is a widely adopted computer industry standard for encoding text in most global writing systems. As noted in our response to "Paragraph 134", above, many languages encountered in the United States today use characters and symbols that do not appear in the "Latin" character set used in English. The latest version of Unicode, 9.0, enables the transmission of 128,172 characters covering more than 100 modern and historic scripts and symbol sets. Unicode is supported in the eXtensible Markup Language (XML) and, by extension, in the CAP. Cal OES recognizes that Unicode characters require more data bits than more familiar Latin encodings; however, for many of the world's languages there is no recognized standard.

However, if non-English languages must be "hard wired" into the current WEA fabric, Cal OES recommends prioritizing those languages whose speakers are most likely to be isolated from the flow of alerts by their lack of English language skills, based on local census data.

3. Matching the Geographic Target Area

Paragraph 141: "What should be the action of the mobile device if the mobile device location cannot be determined or cannot be determined within the time limit, for example, if a mobile device is turned off, or if its location services are turned off? Should the default setting be to display the Alert Message?"

There are two approaches to circumventing the suppression of Alert Messages on mobile devices that are outside of the target area. First, continue to generally geotarget

alerts by cellsite selection as is done now, with the inevitable "spill" eliminated by "geo-filtering" on individual devices. While this approach improves the precision of geotargeting, it neglects people who have "locations of interest" other than their current physical locations (e.g., children's' schools, elderly or non-English speaking relatives, business offices or plants, etc.)

Further, an alternative approach would be to broadcast WEA alerts over as broad an area as network capacity and alert volume allow, and relying on devices' location-awareness to perform all alert geo-filtering. This approach would enable users to program their devices with "locations of interest" as suggested above and to receive alerts for those locations as well as their current physical positions. In addition, eliminating the complex calculation of which cell sites and sectors fit an alert's targeting might help carriers improve their latency budgets for earthquake and other time critical alerts.

If a device is not location-aware, either for lack of capacity or because it has not had time to establish its location, Cal OES recommends alerts be "cached" as suggested in "Paragraph 157" with a standard device notification inviting the user to review recent alerts for any that apply to them or their interests.

Paragraph 142: "CSRIC V recommends that alert originators determine the granularity of alert areas using vertices with two to five decimal places, depending on the nature of the hazard.594 CSRIC V finds that this would allow alert originators to target Alert Messages to with precision from 1.1 km to 1.1 meters. We seek comment on this recommendation and analysis…"

Cal OES supports the Communication Security, Reliability and Interoperability Council's (CSRIC) analysis, as this widely used metric is adequate for most applications. While 1.1-meter resolution may seem excessive now, Cal OES expects situations where it would prove useful. An active shooter situation is one scenario in which this resolution would provide necessary coverage.

Paragraph 145: "Further, each incremental improvement that Participating CMS Providers can make to geo-targeting incrementally reduces alert fatigue, and increases the public's trust in WEA as an alerting platform, thereby reducing milling and, potentially, network congestion. We seek comment on this reasoning."

Cal OES supports the Commission's analysis. Similarly, the public's trust in WEA's efficiency benefits further from the carrier's precision during emergencies.

4. WEA on 5G Networks

Paragraph 148: "We seek comment on how to best incorporate alerts and warnings into the development of 5G technologies, and on how 5G technologies may enable further enhancements to WEA."

Cal OES recommends the Commission, in conjunction with DHS, establish an advisory body of state and local public safety and emergency manager partners to provide input and guidance on 5G standards.

C. Developing Consumer Education Tools

1. Promoting Informed Consumer Choice at the Point of Sale

Paragraph 151: "Is our existing requirement, which requires CMS Providers participating in part to inform consumers at the point of sale that WEA "may not be available on all devices or in the entire service area," sufficient to inform potential subscribers of whether they will receive a potentially life-saving alert through the Participating CMS Provider's network?"

Cal OES recommends this language be revised to include more measurable concerns to inform consumers when purchasing wireless devices.

Paragraph 152: "We seek comment on the extent to which knowledge of the specific technologies that competing CMS Providers will use to support WEA would promote more informed consumer choice between CMS Providers."

Cal OES recommends consumers are informed of the observable differences in WEA service and device behavior, rather than requiring consumers to interpret technical details.

2. Promoting Informed Consumer Choice about the Receipt of WEA Alert Messages

Paragraph 154: "CSRIC V recommends that Commission collaborate with WEA stakeholders to create a set of 'minimum specifications for an enhanced, secured and trusted, standards-based, CMSP-controlled WEA mobile device based application . . . in order to ensure high level support.'"

Cal OES agrees that the behavior of the WEA mobile device software should be consistent and specified. However, Cal OES warns against "vendor enhancements" or "design choices," as they lead to inconsistent user experiences. Peer-to-peer tutoring is a key element in user training for WEA, and inconsistencies among versions of the WEA implementation will limit community self-help.

Paragraph 157: "Would it make more sense to offer consumers the option to modify or mute the attention signal and vibration cadence for Imminent Threat Alerts at night than to offer them the option to not receive Imminent Threat Alert during the night?... Taken together with our proposal that Alert Messages be appropriately preserved for user review, would providing users with the option to receive and cache Alert Messages provide many consumers with an appropriate balance between their perceived need to receive critical information during emergencies, and their desire to minimize the intrusiveness of the WEA attention signal and vibration cadence?"

Cal OES prefers this approach to the current "hard opt-out," because these configurations would align Alert Messages with other cellphone features. Cal OES recommends all received alerts be cached and reviewable in order to further incentivize users to configure a device interruption during emergencies.

D. Improving WEA Transparency

1. Annual WEA Performance Reporting

Paragraph 161: "We seek comment on these reporting elements and on the assessment methodologies Participating CMS Providers could use to produce Annual WEA Performance Reports below."

Cal OES believes the elements of geo-targeting accuracy, alert latency, and availability and reliability cover the main concerns of state and local alert originators.

Paragraph 163: "Would a single performance report to become due on a certain date, rather than an annual requirement, suffice to inform emergency managers and the public about WEA's capabilities?"

Cal OES recommends that performance reporting occur annually, so that the implications of any changes in the technological and business environments can be sufficiently assessed and addressed.

Paragraph 165: "Would an average deviation from the target area be an adequate measure of the accuracy of geo-targeting?"

Cal OES does not advise a single average of targeting deviation, as this metric does not provide a sufficient understanding of WEA capability and performance because "outlier" events can be misrepresented in an average. Cal OES recommends using a tabulation of events in statistical intervals, so that the frequency and degree of the worst errors can be appreciated.

Paragraph 168: "We seek comment on whether emergency managers need any additional information beyond the accuracy of geo-targeting, the extent of alert delivery latency, and the regularity of availability and reliability in order to understand the strengths and weaknesses of WEA?"

Cal OES believes these three parameters, appropriately presented (e.g., as distributions, not just averages), appropriately support the vast majority of emergency managers and public safety officials.

Paragraph 170: "In the alternative, we seek comment on whether our State/Local WEA Testing model provides a framework to emergency managers that is sufficient to enable them to collect localized geotargeting, latency, and system availability data without requiring additional involvement from Participating CMS Providers."

State and local agencies can commission their own studies if there is a question about whether a particular carrier or a particular area is maintaining required service levels. However, enforcing quality control of WEA lies in the purview, jointly, of the Commission and DHS.

Paragraph 172: "We seek comment on whether increases in system transparency created by Annual WEA Performance Reports would be likely to improve our ability to act in the public interest to remediate any issues that the reports may reveal."

Cal OES strongly believes that all standards set for WEA should be both observable and evaluated on a continuing basis of management. Such visibility is the keystone of any enforcement program. Further, carriers should provide annual reports on their WEA performance implementation.

Cal OES encourages the Commission to task its Enforcement Bureau to conduct regular spot-checks of WEA performance metrics to verify that the carriers' reports accurately reflect reality.

2. Alert Logging Standards and Implementation

No comment.

E. Compliance Timeframes

No comment.

F. Benefit-Cost Analysis

No comment.

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